

STAGE 1

Project: 0411-08-1686 Boring No.: B-2321UD Depth (ft.): 130.5-132.5
 Test Type: CIU Triaxial Sample No.: UD15 Stage No.: 1
 Specimen No.: c

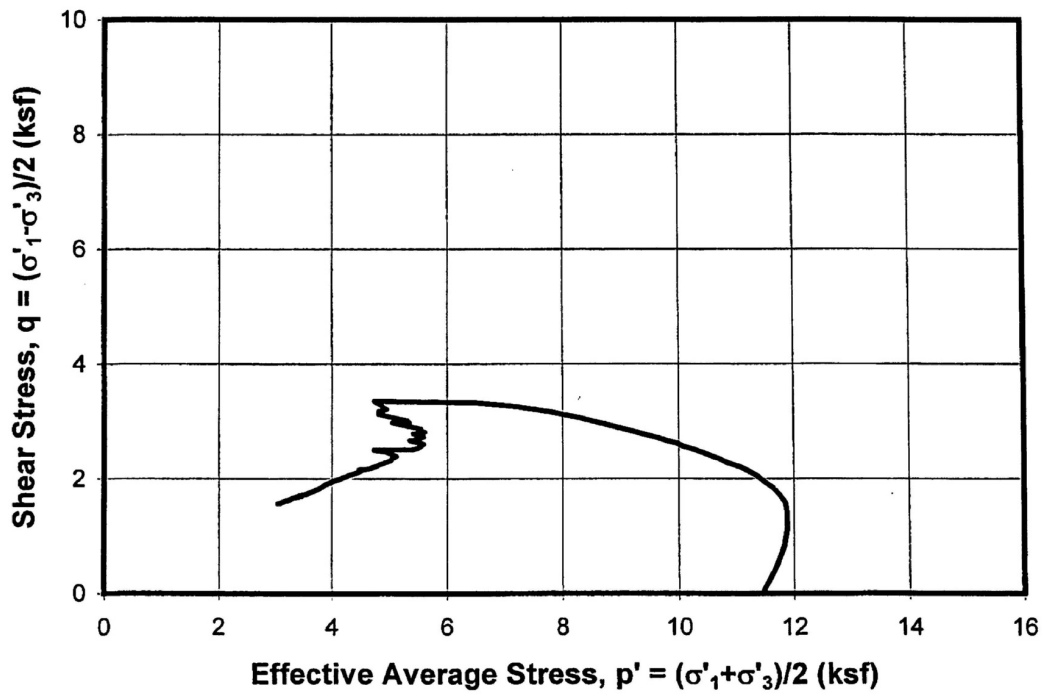
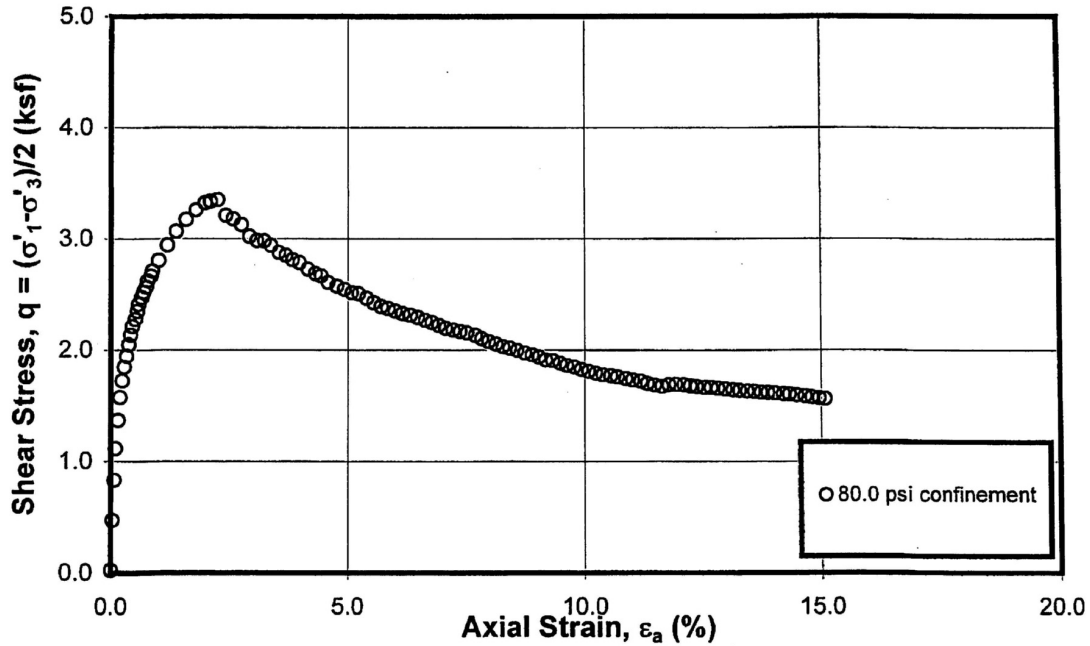
Elapsed Time (min)	Axial Strain ϵ_a (%)	q (ksf)	p' (ksf)	Excess PWP, ΔU (ksf)	Volume Change (cm ³)	Obliquity σ'_1/σ'_3 -	A_f -	E_s (ksf)	E_T (ksf)
0.0	0.000	0.027	11.465	0.000	0.000	1.005	0.000	-	-
20.0	0.032	0.473	11.698	0.214	0.000	1.084	0.239	2775.0	2428.4
40.0	0.074	0.835	11.831	0.439	0.000	1.152	0.274	2190.3	2049.7
60.0	0.102	1.116	11.874	0.676	0.000	1.207	0.312	2135.7	1272.9
80.0	0.152	1.368	11.882	0.920	0.000	1.260	0.344	1769.2	1222.1
100.0	0.191	1.576	11.851	1.163	0.000	1.307	0.375	1622.4	917.6
120.0	0.237	1.724	11.749	1.413	0.000	1.344	0.416	1429.3	601.3
140.0	0.283	1.847	11.628	1.653	0.000	1.378	0.455	1284.8	507.4
160.0	0.325	1.947	11.489	1.888	0.000	1.408	0.494	1182.4	370.3
180.1	0.377	2.051	11.361	2.124	0.000	1.441	0.526	1073.9	681.4
200.1	0.411	2.137	11.215	2.361	0.000	1.471	0.559	1027.1	357.1
220.1	0.446	2.212	11.055	2.594	0.000	1.500	0.594	980.6	401.2
240.1	0.505	2.277	10.855	2.857	0.000	1.531	0.635	891.0	314.8
260.1	0.546	2.346	10.717	3.062	0.000	1.560	0.661	849.1	349.6
280.1	0.576	2.409	10.554	3.285	0.000	1.592	0.691	826.7	318.2
300.1	0.636	2.469	10.401	3.495	0.000	1.623	0.718	768.1	-2842.9
320.1	0.672	2.519	10.256	3.695	0.000	1.651	0.743	741.8	219.0
340.1	0.728	2.564	10.092	3.909	0.000	1.681	0.770	697.5	256.1
360.1	0.756	2.623	9.964	4.097	0.000	1.715	0.789	687.2	288.2
380.1	0.820	2.664	9.806	4.300	0.000	1.746	0.815	643.6	298.0
400.1	0.851	2.710	9.672	4.469	0.000	1.779	0.834	630.6	147.2
450.1	0.974	2.805	9.306	4.930	0.000	1.863	0.888	570.8	174.0
530.1	1.153	2.941	8.772	5.608	0.000	2.009	0.962	505.6	145.4
610.1	1.335	3.066	8.298	6.217	0.000	2.172	1.021	455.4	120.4
690.1	1.541	3.171	7.792	6.813	0.000	2.372	1.084	408.0	83.3
770.1	1.750	3.258	7.216	7.479	0.000	2.646	1.158	369.3	72.6
850.1	1.943	3.322	6.506	8.253	0.000	3.086	1.253	339.2	49.4
893.1	2.052	3.337	5.861	8.919	0.000	3.643	1.346	322.6	20.8
953.1	2.207	3.352	4.728	10.053	0.000	5.870	1.513	301.3	-2.9
1013.1	2.378	3.207	4.947	9.693	0.000	4.686	1.525	267.5	-80.8
1073.1	2.533	3.176	4.799	9.815	0.000	4.912	1.558	248.6	-151.6
1133.1	2.705	3.123	4.800	9.759	0.000	4.727	1.576	229.0	-28.2
1193.1	2.878	3.019	5.290	9.167	0.000	3.659	1.532	208.0	-151.2
1253.1	3.031	2.981	5.343	9.087	0.000	3.525	1.536	194.9	-29.1
1313.1	3.194	2.978	5.039	9.380	0.000	3.889	1.589	184.8	-25.7
1373.1	3.341	2.939	5.209	9.172	0.000	3.589	1.574	174.3	-38.3
1433.1	3.516	2.875	5.528	8.778	0.000	3.168	1.542	162.0	-45.7
1493.1	3.666	2.849	5.521	8.768	0.000	3.132	1.553	154.0	-55.3
1553.1	3.810	2.811	5.609	8.640	0.000	3.009	1.552	146.2	-23.1
1613.1	3.962	2.785	5.404	8.821	0.000	3.127	1.599	139.2	-64.1
1673.1	4.141	2.728	5.588	8.568	0.000	2.908	1.588	130.5	-48.3
1733.1	4.301	2.687	5.458	8.664	0.000	2.939	1.629	123.7	-32.7

STAGE 1

Elapsed Time (min)	Axial Strain ϵ_a (%)	q (ksf)	p' (ksf)	Excess PWP, ΔU (ksf)	Volume Change (cm ³)	Obliquity σ'_1/σ'_3 -	A_f -	E_s (ksf)	E_T (ksf)
1793.1	4.434	2.667	5.345	8.761	0.000	2.993	1.659	119.1	-70.1
1853.1	4.580	2.606	5.588	8.459	0.000	2.748	1.639	112.6	-54.6
1913.1	4.762	2.572	5.536	8.468	0.000	2.735	1.665	106.9	-36.9
1973.1	4.925	2.544	5.488	8.492	0.000	2.728	1.687	102.2	-39.8
2033.1	5.086	2.513	5.404	8.551	0.000	2.739	1.719	97.8	-34.0
2093.1	5.241	2.506	4.722	9.211	0.000	3.261	1.860	94.6	-31.0
2153.1	5.406	2.465	4.954	8.954	0.000	2.980	1.835	90.2	-56.6
2213.1	5.550	2.424	5.033	8.826	0.000	2.858	1.842	86.4	-41.5
2273.1	5.706	2.389	5.113	8.712	0.000	2.755	1.844	82.8	-38.4
2333.1	5.846	2.372	5.073	8.740	0.000	2.756	1.863	80.2	-28.5
2393.1	5.996	2.349	5.030	8.757	0.000	2.752	1.886	77.5	-25.2
2453.1	6.149	2.326	5.020	8.731	0.000	2.726	1.902	74.8	-26.0
2513.1	6.300	2.312	4.997	8.753	0.000	2.721	1.915	72.5	-20.5
2573.1	6.454	2.293	4.947	8.784	0.000	2.729	1.938	70.2	-30.8
2633.1	6.615	2.267	4.883	8.819	0.000	2.733	1.969	67.7	-30.9
2693.1	6.761	2.246	4.816	8.860	0.000	2.748	1.998	65.6	-40.2
2753.1	6.903	2.221	4.760	8.902	0.000	2.750	2.027	63.6	-26.7
2813.1	7.050	2.196	4.692	8.936	0.000	2.760	2.061	61.6	-20.9
2873.1	7.201	2.182	4.669	8.948	0.000	2.755	2.076	59.9	-20.3
2933.1	7.353	2.167	4.593	9.014	0.000	2.786	2.106	58.2	-17.7
2993.1	7.499	2.156	4.459	9.128	0.000	2.872	2.145	56.8	-21.1
3053.1	7.677	2.133	4.500	9.065	0.000	2.803	2.153	54.9	-40.3
3113.1	7.811	2.105	4.431	9.108	0.000	2.810	2.192	53.2	-35.2
3173.1	7.959	2.077	4.355	9.152	0.000	2.824	2.234	51.5	-42.3
3233.2	8.122	2.054	4.277	9.203	0.000	2.849	2.273	49.9	-18.5
3293.2	8.264	2.034	4.234	9.236	0.000	2.848	2.301	48.6	-23.1
3353.2	8.412	2.018	4.202	9.257	0.000	2.848	2.323	47.4	-33.7
3413.2	8.571	2.000	4.159	9.284	0.000	2.852	2.352	46.0	-18.4
3473.2	8.741	1.977	4.085	9.330	0.000	2.875	2.392	44.6	-30.8
3533.2	8.893	1.958	4.042	9.353	0.000	2.880	2.421	43.4	-33.4
3593.2	9.040	1.939	3.990	9.382	0.000	2.891	2.454	42.3	-26.6
3653.2	9.183	1.913	3.940	9.406	0.000	2.889	2.494	41.1	-25.1
3713.2	9.327	1.905	3.914	9.439	0.000	2.897	2.510	40.3	-19.2
3773.2	9.480	1.883	3.865	9.456	0.000	2.899	2.548	39.2	-27.9
3833.2	9.625	1.864	3.844	9.456	0.000	2.883	2.574	38.2	-26.3
3893.2	9.775	1.849	3.817	9.474	0.000	2.879	2.598	37.3	-23.5
3953.2	9.928	1.825	3.784	9.491	0.000	2.864	2.635	36.2	-24.1
4013.2	10.085	1.810	3.746	9.515	0.000	2.870	2.664	35.4	-24.5
4073.2	10.237	1.792	3.694	9.534	0.000	2.885	2.701	34.5	-15.0
4133.2	10.389	1.777	3.666	9.549	0.000	2.881	2.728	33.7	-18.3
4193.2	10.557	1.769	3.643	9.558	0.000	2.888	2.745	33.0	-14.5
4253.2	10.700	1.760	3.608	9.590	0.000	2.904	2.767	32.4	-12.8
4313.2	10.869	1.744	3.564	9.620	0.000	2.917	2.800	31.6	-15.3
4373.2	11.015	1.732	3.564	9.619	0.000	2.892	2.816	31.0	-16.3
4433.2	11.180	1.722	3.514	9.645	0.000	2.922	2.845	30.3	-13.5
4493.2	11.321	1.702	3.434	9.698	0.000	2.966	2.897	29.6	-28.6
4553.2	11.469	1.687	3.389	9.747	0.000	2.983	2.932	29.0	-26.9
4613.2	11.620	1.674	3.350	9.757	0.000	2.998	2.963	28.4	-3.4
4673.2	11.770	1.691	3.465	9.657	0.000	2.905	2.904	28.3	25.3
4733.2	11.922	1.693	3.452	9.684	0.000	2.924	2.905	27.9	-4.5

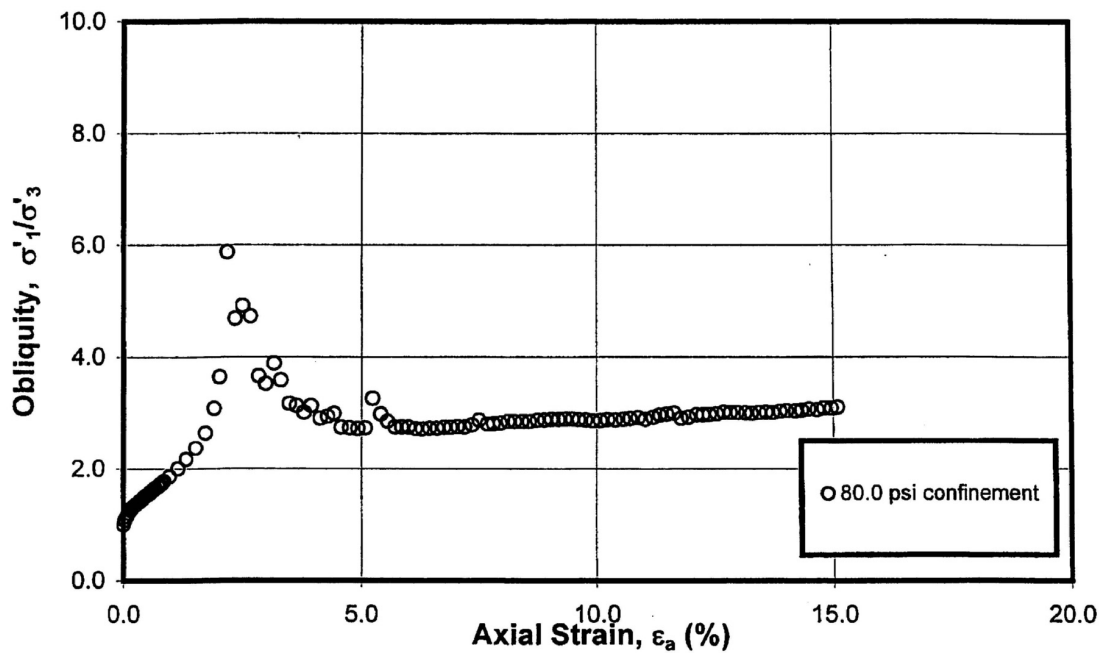
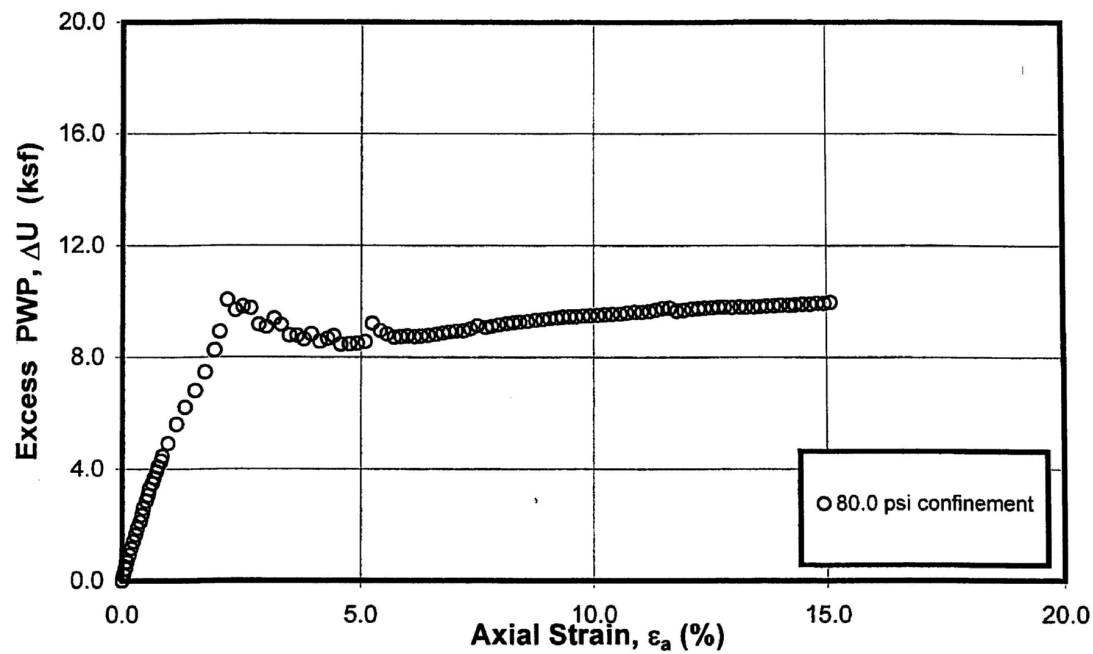
STAGE 1

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UNDRAINED TRIAXIAL COMPRESSION TEST
 Isotropically Consolidated
 Sample: UD15c - Depth: 130.5-132.5 ft
 Boring B-2321UD

Reviewed By: WFA



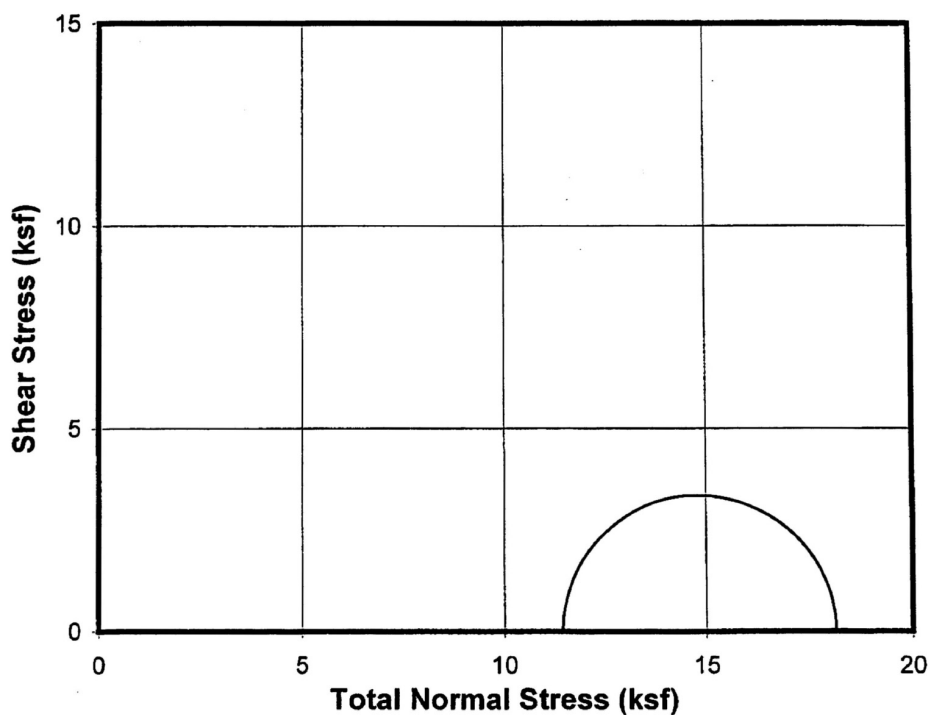
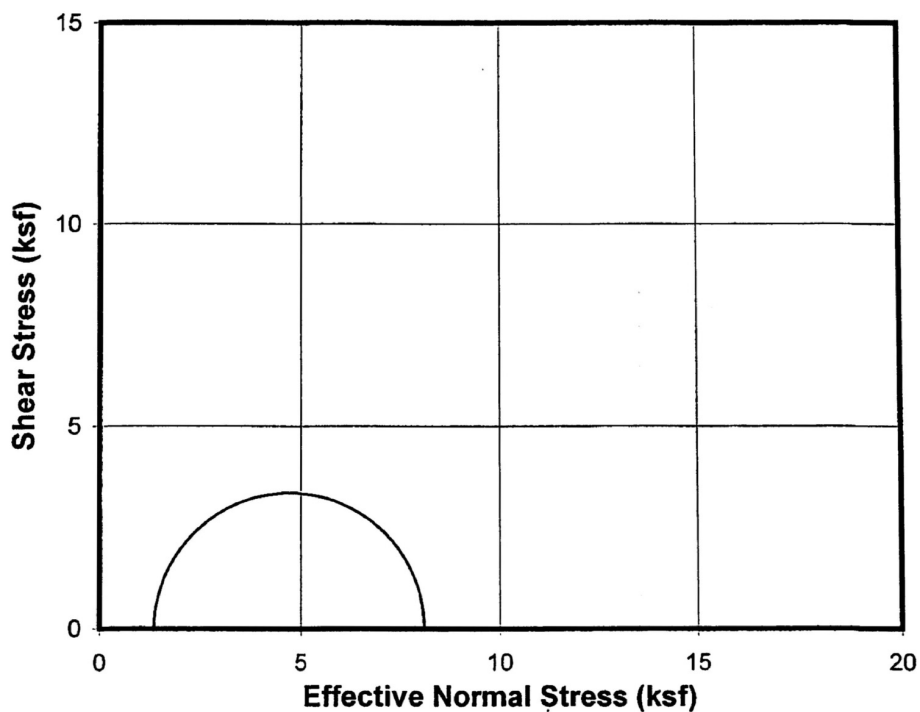
UNDRAINED TRIAXIAL COMPRESSION TEST

Isotropically Consolidated

Sample: UD15c - Depth: 130.5-132.5 ft

Boring B-2321UD

Reviewed By: *WLD*



UNDRAINED TRIAXIAL COMPRESSION TEST

Isotropically Consolidated- Mohr's Circles

Sample: UD15c - Depth: 130.5-132.5 ft

Boring B-2321UD

Reviewed By: *WER*

TRIAXIAL TEST (ASTM D 4767-04): Specimen Setup / Take Down

Project Number: 0411-08-1686 Test Type: CIU Triaxial Cell No.: TRX-7 File Name: 2359UD_UD5
 Task No.: NA Test Stress(es), σ'_c or $\sigma'_{v,c}$ = 5.04, NA, NA & NA ksf
 Project Name: Exelon (Victoria) $k(\sigma'_{h,c} / \sigma'_{v,c})$ = 1.00 Induced OCR = 1.00 $K_{ua}(\sigma'_{d,ua} / 2\sigma'_{v,c})$ = NA

Assig. Remarks: Specific Gravity: 2.710 ☒ Meas.; ☐ Assumed

☒ Tube	☐ Field Extruded	☐ Liner	☐ Remolded	☐ Tamping	Constant Effort: Blows/Tamps per Layer =
Boring No.: B-2359UD	☐ Reconstituted	☐ Impact/Rammer		Rammer Wgt. (lbf) =	No. Layers =
Sample No.: UD5	Compostite No.:	☐ Pluviated:		Tamper Force (lbf) =	Drop (in.) =
Depth (ft): 40.0-41.7	Specimen No.: c	☐ Kneading		Undercompaction: U_{ni} (%) =	Dia. (in.) =
☐ Spec. Selection by X-ray;	☐ Geomarine Sample			Ref. Effort =	% Comp. = $\pm$ Opt. =

Type	☒ Isotropic	K_o stress path	☒ Used automated system: Drained Axial Strain Rate, $\epsilon_{a,rate}$ (%/h) = NA
Consolidation	☐ Anisotropic	45° stress path	Remarks:
Loading Conditions:	☒ Static	☒ Undrained	☒ Comp.
	☐ Post Cyclic	☐ Drained	☐ Ext.
		☐ Stress Path	☐ Stress
		☐ Constant Cell Pressure	☐ Cyclic (Hz)
		☐ Variable Cell Pressure	Rate: 0.1; 1; Other:

Water Content (WC);	Initial - Trimming Location			Final, W_{at} (see below)
	Top ($W_{o,1}$)	Bottom ($W_{o,2}$)	Sides ($W_{o,3}$)	
Container No	4022	4146	587	4003
Mass Moist Soil + Cont. (g)	75.06	90.34	80.69	149.61
Mass Dry Soil + Container (g)	66.96	79.80	71.62	127.21
Mass Container (g)	30.12	30.34	31.53	30.36
Water Content, $W_{o,n}$ (%)	21.99	21.31	22.62	23.13
Avg. Initial WC, $W_{o,avg}$ (%)	21.97	Final (W_{at});	☒ Slice ;	Whole Spec.
See attached data sheet(s) for additional water contents				

SOIL MASSES:		Initial	Final
Moist + Tare (etc.) (g)		477.28	485.45
Tare (etc.) (g)		0.00	0.00
Mass Moist Spec., M_n (g)		477.28	485.45
Excess Dry Soil (soil not included in final mass measurement)			
Container No			
Mass Dry Soil + Cont. (g)			
Mass Container (g)			
Mass Excess Dry Soil, $M_{d,es}$ (g)			0.00

Specimen Dimensions, (mm)					
Height		Dia., X indicates with membrane			
Initial (H_o)	Final (H_{at})	Initial (D_o)		Final (D_{at})	
GB 100.000	100.000	1 T	51.10	57.80	For
1 15.55	-0.34	2 M	51.00	59.00	Wedge
2 15.51	-0.69	3 B	51.00	58.50	Failure
3 15.50	0.27	1 T		52.50	= d_{max}
4 15.56	-0.19	2 M		52.30	= d_{min}
5 15.49	0.10	3 B			= Δd
Avg. 115.52	99.83	Avg. 51.03		56.02	xxxxx

Measuring Devices:		$A_o = \pi D^2/400$ (cm ²)	20.45
Pi Tape: ☒ Dia		V_o (cm ³)	236.30
Calipers: ☐ Ht.; ☐ Dia		$A_{atb,m} = \pi (D^*_{at})^2 / 400$ (cm ²)	24.55
Dial Comparator ☒ Ht.; ☐ Dia		$A_{atw,m} = (d_{min} - 2\Delta d) d_{max} \pi / 400$ (cm ²)	NA
Remarks: ID# PI-002		$D^*_{at} = (D_T + 2D_M + D_B) / 4$ (mm)	55.91

☐ Photo Taken.

Failure Sketch

$\epsilon_a =$ 20%

Failure Mode: NA - Not Applicable

☐ Bulge

☒ Wedge

☐ Parabolic

Wedge/Bulge Ht. = NA (mm)

GB - Gage Block

Other Remarks: LL=65 PL=18 PI=47

Final Visual Classification: Pale Brown Fat CLAY (CH)

Trimmed / Reconstituted By: AW Set Up By: TP Taken Down By: AW

Date: 3/21/2008 Date: 3/21/2008 Date: 4/1/2008

Prelim. Calc. By: TP Final Calc. By: TP Reviewed By: WFR

☐ See more detailed sketch on attached sheet. Remarks:

MULTISTAGE TRIAXIAL TEST: Specimen Calculations & Summary(1)

Project Number: 0411-08-1686

Cell No.: TRX-7

File Name: 2359UD_UD5c

Task Number: NA

Specific Gravity: 2.710

☒ Measured; ☒ Assumed

Boring No.: B-2359UD

Sample No.: UD5

Specimen No.: c

Depth (ft): 40.0-41.7

Type Test: CIU Triaxial

Specimen: ☒ "Undisturbed";

☐ Reconstituted;

Calculations Corr. for Salt (dissolved solids): ☒ No or, ☐ Yes, with concentration = ppm

Initial Water Contents (WC), (W_o) over Saturation, (S_o), in (%):						Calculated Mass of Dry Soil (g)	
Top, $W_{o,1}$	Bottom, $W_{o,2}$	Sides, $W_{o,3}$	Avg., $W_{o,avg}$	Selct., $W_{o,s}$	Back Cal., $W_{o,bc}$	Initial Selected WC, w_o (%)	21.97
W_o 21.99	21.31	22.62	21.97	21.97	21.06	Initial, $M_{d,o}$	391.31
S_o 94.0	92.4	95.5	94.0	94.0	91.8	Final, $M_{d,at}$	394.26
Measured final mass of moist soil, $M_{t,at}$ (g)						Selected, M_d	394.26
Final mass of moist soil corrected for excess dry soil, $M_{t,at,c}$ (g)							

Consolidation Data	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Changes in Height (mm) and Volume (cm^3) Within Given Consolidation Stages/Columns	At Initial Seating Stress	During Back-Pressuring	1st Consol. Increment (1)	Column 2 or 3 to 1st Test Stage (1)	Column 4 to 2nd Test Stage	Column 5 to 3rd Test Stage	Column 6 to 4th Test Stage
Sign Convention: (+) Deformation in compression or Flow out of spec.; (-) Deformation in extension (swell) or Flow into spec.							
Change in Height, $\Delta H_{c,n}$	-0.08	-1.10		1.34	NA	NA	NA
Sum of changes in (+ out) burette readings, $\Delta b_{r,n}$ (- in)	-0.17	-16.71	NA	7.77	NA	NA	NA
Theoretical $\Delta V_{ct,n} = (3V_o \times \Delta H_{c,n} / H_o)$	-0.51	-6.75		16.27	NA	NA	NA
Vol. Factor, $F_v = \Delta b_{r,n} / \Delta V_{t,n}$				8.23	NA	NA	NA
Corrected $\Delta V_{ct,n} = F_v \times \Delta V_{t,n}$			NA	0.94	NA	NA	NA
Selected $\Delta V_{c,n}$	-0.51	-6.75		0.00	NA	NA	NA

Summary For Test Stages					
Test Stage:	1st = 1	2nd = 2	3rd = 3	4th = 4	
Cell Pressure, $\sigma_{c,n}$ (psi)	124.80	NA	NA	NA	Number of Test Stages = 1 $t_{50} = 220$ min
Back Pressure, $U_{b,n}$ (psi)	89.62	NA	NA	NA	
Axial Force Reading, $P_{r,n}$ (lbf)	2.00	NA	NA	NA	
Eff. Consol. Stress (σ'_c or $\sigma'_{v,c}$) (4), (ksf)	5.02	NA	NA	NA	
t_c , ON or in ☒ days ☐ hrs	3.00	NA	NA	NA	

At Final Test Stress/Stage - Summary of Calculation of ΔV_c (cm^3) by Different Procedures					
By Selected Volumes	By Saturation = 100 %	By Change in Mass (5)	For Diff. in Meas. Vol. ($V_o - V_{at}$)	For Selected ΔV_c , required G_s for $S_c = 100$ %:	
$\Delta V_c = 0.51$	$\Delta V_c = -0.80$	$\Delta V_c = 8.67$	& corr. for ΔH_{id} $\Delta V_c =$	2.735	

At Final Test Stress/Stage - Consolidation Conclusions					
$\Delta H_{c,f}$ (mm) = 0.16	$\Delta V_{c,f}$ (cm^3) = 0.51	Back Cal. G_s for $S=100\%$ = 2.735	Normalized	Ht. Ch. (%) = 0.64	
$\epsilon_{ac,c}$ (%) = 0.14	$\epsilon_{vc,f}$ (%) = 0.22		Diff. in:	Vol. Ch. (%) =	

Summary of Specimen Physical Properties											
Specific Gravity: $G_s = 2.710$ Measured	Height (mm)	Volume (cm^3)	Area (cm^2)	Water Content (%)	Unit Weight Total (pcf)	Dry (pcf)	Saturation (%)	Void Ratio e	Volumetric Water Content	Porosity n	Skempton B parameter % (6)
Condition:											
Initial:	115.52	236.30	20.45	21.06	126.09	104.16	91.8	0.621	0.3519	0.383	90.0
After to 1st σ'_c	115.36	235.79	20.44	23.13	128.53	104.38	101.4	0.618	0.3874	0.382	
Consol.: to 2nd σ'_c											
to 3rd σ'_c											
to 4th σ'_c											

Notes: (1) If the consol. stress in the 1st consol. increment & 1st test stage are equal, log the data in Column 4.

(2) The height changes occurring within each shearing and unloading stage (1 - 4) are recorded in these rows (after Column 3).

(3) The volume changes occurring within each shearing and unloading stage (1 - 4) are calculated/recorded in these rows (after Column 3).

(4) Stresses are corrected for membrane.

(5) $\sim M_{t,c} - (M_{t,at,c} + P_{water} \times \Delta V_{in, column 1 \& 2})$

(6) Initial value is after back pressuring

NA - Not Applicable ON - Over Night WC - Water Content Remarks: Wet Method used in the Saturation Stage

Calculated By: TP

Reviewed By: HP

MULTISTAGE TRIAXIAL TEST: Specimen Calculations Summary(2)

Project Number: 0411-08-1686 Test Type: CIU Triaxial App. No.: TRX-7 File Name: 2359UD_UD5
 Project Name: Exelon (Victoria) Task No.: NA Test No.: 0 Test Series for: 0

☒ Tube	☐ Field Extruded	☐ Liner	☐ Remolded	☐ Tamping	☐ Constant Effort: Blows/Tamps per Layer =
Boring No.: <u>B-2359UD</u>	☐ Reconstituted	☐ Impact/Rammer		Rammer Wgt. (lbf) =	No. Layers =
Sample No.: <u>UD5</u>	Composite No.: <u></u>	☐ Pluviated:		Tamper Force (lbf) =	Drop (in.) =
Depth (ft): <u>40.0-41.7</u>	Specimen No.: <u>c</u>	☐ Kneading		Undercompaction: U_{nl} (%) =	Dia. (in.) =
☐ Spec. Selection by X-ray;	☐ Geomarine Sample			Ref. Effort =	% Comp. = $\pm$ Opt. =

Type	☒ Isotropic	☐ K_0 stress path	☒ Used automated system	Drained Axial Strain Rate, $\epsilon_{a,rate}$ (%/hr.) = <u>NA</u>
Consolidation	☐ Anisotropic	☐ 45° stress path	Remarks:	
Loading	☒ Static	☒ Undrained	☒ Comp.	☒ Strain
Conditions	☐ Post Cyclic	☐ Drained	☐ Ext.	☐ Stress
		☐ Constant Cell pressure	☐ Cyclic (Hz)	☐ Stress
		☐ Variable Cell pressure	Rate: <u>0.1</u>	☐ Strain
				1; Other:

Specific Gravity: $G_s = 2.710$ Measured	Height (mm)	Volume (cm ³)	Area (cm ²)	Water Content (%)	Unit Weight		Saturation (%)	Void Ratio e	Skempton B para- meter % (1)	Unit for Stresses: (ksf)
					Total (pcf)	Dry (pcf)				
Condition:										
Initial:	115.52	236.30	20.45	21.06	126.09	104.16	91.83	0.62	90.0	
After to 1st σ'_c	115.36	235.79	20.44	23.13	128.53	104.38	101.44	0.62		
Consol.: to 2nd σ'_c										
to 3rd σ'_c										
to 4th σ'_c										

Item	Unit	1st Stage	2nd Stage	3rd Stage	4th Stage
Axial Strain during Consol., ϵ_c :	%	0.136	NA	NA	NA
Vol. Strain during Consol., ϵ_v :	%	0.216	NA	NA	NA
Effective Vertical Stress, σ'_v :	(ksf)	5.019	NA	NA	NA
Effective Horizontal Stress, σ'_h :	(ksf)	4.949	NA	NA	NA
Consol. Stress Ratio, k (σ'_h / σ'_v):	-	0.986			
Induced OCR:	-	1.00	NA	NA	NA
Eff. Average Stress, $(\sigma'_v + \sigma'_h)/2$:	(ksf)	9.968			
Eff. Mean Stress, $(\sigma'_v + 2\sigma'_h)/3$:	(ksf)	4.972			
Undr. Ambient Shear Stress, $\tau_{a,ua}$:	(ksf)	NA	NA	NA	NA
Undr. Ambient Shear Strain, $\epsilon_{a,ua}$:	%	NA	NA	NA	NA

Membrane Correction		
Type:	<u>Bulge</u>	
Modulus:	<u>150.0</u> psi	
Diameter:	<u>47.27</u> mm	
Thickness:	<u>0.35</u> mm	
Area Correction		
Type:	<u>Bulge</u>	
Stage	Area Corr. Const.:	Final Area (cm ²):
1st	1.184	24.55
2nd		
3rd		
4th		
Filter Paper Correction		
Type:	<u>None</u>	Type Strips: <u>Spiral #1</u>
Strips:	<u>8</u>	
Force:	<u>0.000</u> lbf/strip	

Notes: See Fugro South, Inc. Notation Listing for definition of symbols and acronyms.

(1) Initial B is after saturation

NA - Not Applicable

Final Visual Description and Remarks: Pale Brown Fat CLAY (CH)

Stage	Stress Status	ϵ_a (%)	q (ksf)	p' (ksf)	ΔU (ksf)	σ_1' (ksf)	σ_3' (ksf)
1st	Max Shear Stress	7.85	2.428	6.496	0.885	8.923	4.068
	Max Obliquity	5.37	2.335	6.033	1.258	8.368	3.697
2nd	Max Shear Stress						
	Max Obliquity						
3rd	Max Shear Stress						
	Max Obliquity						
4th	Max Shear Stress						
	Max Obliquity						

Remarks: Strain Rate (%/min) = 1.82E-03

STAGE 1

Project: 0411-08-1686
Test Type: CIU Triaxial

Boring No.: B-2359UD
Sample No.: UD5
Specimen No.: c

Depth (ft.): 40.0-41.7
Stage No.: 1

Elapsed Time (min)	Axial Strain ϵ_a (%)	q (ksf)	p' (ksf)	Excess PWP, ΔU (ksf)	Volume Change (cm ³)	Obliquity σ'_1/σ'_3 -	A_f -	E_s (ksf)	E_T (ksf)
0.0	0.000	0.035	4.984	0.000	0.000	1.014	0.000	-	-
13.6	0.002	0.193	5.069	0.074	0.000	1.079	0.230	15008.0	7996.7
27.3	0.028	0.322	5.107	0.164	0.000	1.134	0.286	2031.1	901.0
40.9	0.057	0.439	5.137	0.252	0.000	1.187	0.311	1418.3	956.5
54.6	0.076	0.542	5.139	0.352	0.000	1.236	0.348	1338.3	888.3
68.2	0.102	0.632	5.155	0.429	0.000	1.280	0.357	1168.4	1072.4
81.8	0.113	0.708	5.153	0.505	0.000	1.318	0.374	1195.4	1023.9
95.5	0.137	0.779	5.152	0.581	0.000	1.356	0.387	1085.8	531.3
109.1	0.162	0.839	5.144	0.640	0.000	1.390	0.401	992.7	601.9
122.7	0.178	0.895	5.136	0.706	0.000	1.422	0.411	969.1	576.9
136.4	0.199	0.942	5.140	0.751	0.000	1.449	0.414	910.0	616.2
150.0	0.209	0.982	5.126	0.806	0.000	1.474	0.425	905.0	519.2
163.7	0.245	1.024	5.117	0.858	0.000	1.501	0.433	806.1	266.2
177.3	0.275	1.068	5.116	0.904	0.000	1.528	0.436	751.4	330.8
190.9	0.293	1.101	5.111	0.943	0.000	1.549	0.441	727.6	315.9
204.6	0.318	1.135	5.107	0.976	0.000	1.571	0.444	691.3	324.9
218.2	0.335	1.167	5.091	1.027	0.000	1.595	0.453	675.8	329.1
231.8	0.355	1.194	5.094	1.048	0.000	1.613	0.453	653.3	222.7
245.5	0.384	1.219	5.098	1.069	0.000	1.629	0.452	616.5	289.5
259.1	0.397	1.245	5.109	1.097	0.000	1.645	0.448	609.9	-415.0
272.8	0.393	1.268	5.094	1.126	0.000	1.663	0.455	627.3	-586.6
286.4	0.458	1.289	5.097	1.144	0.000	1.677	0.455	548.2	408.4
300.0	0.465	1.318	5.094	1.173	0.000	1.698	0.457	551.5	444.1
313.7	0.498	1.340	5.102	1.190	0.000	1.712	0.455	524.5	169.7
327.3	0.516	1.358	5.099	1.220	0.000	1.726	0.456	513.4	244.7
340.9	0.531	1.380	5.096	1.238	0.000	1.743	0.458	506.8	185.5
354.6	0.576	1.399	5.086	1.255	0.000	1.759	0.462	473.7	178.6
368.2	0.590	1.419	5.103	1.268	0.000	1.770	0.457	468.9	194.2
381.9	0.614	1.432	5.098	1.292	0.000	1.782	0.459	454.9	120.7
395.5	0.637	1.447	5.096	1.294	0.000	1.793	0.460	443.3	102.7
409.1	0.679	1.463	5.093	1.312	0.000	1.806	0.462	420.9	140.6
422.8	0.696	1.480	5.093	1.341	0.000	1.820	0.462	415.6	163.9
436.4	0.725	1.499	5.089	1.359	0.000	1.835	0.464	403.8	119.1
450.0	0.754	1.515	5.098	1.359	0.000	1.846	0.461	392.7	-193.9
463.7	0.747	1.532	5.107	1.378	0.000	1.857	0.459	400.8	-234.9
477.3	0.799	1.540	5.118	1.378	0.000	1.861	0.456	377.0	69.5
491.0	0.823	1.553	5.101	1.392	0.000	1.876	0.461	369.0	130.9
504.6	0.839	1.566	5.115	1.403	0.000	1.883	0.457	364.8	100.6

STAGE 1

Elapsed Time (min)	Axial Strain ϵ_a (%)	q (ksf)	p' (ksf)	Excess PWP, ΔU (ksf)	Volume Change (cm ³)	Obliquity σ'_1/σ'_3 -	A_f -	E_s (ksf)	E_T (ksf)
518.2	0.872	1.574	5.116	1.405	0.000	1.888	0.457	353.1	76.9
531.9	0.893	1.585	5.118	1.423	0.000	1.897	0.457	347.1	142.0
545.5	0.915	1.604	5.131	1.422	0.000	1.910	0.453	343.2	126.5
559.1	0.943	1.615	5.126	1.441	0.000	1.920	0.455	335.2	80.1
613.7	1.038	1.655	5.131	1.466	0.000	1.952	0.455	312.2	81.4
668.2	1.142	1.696	5.149	1.497	0.000	1.982	0.450	290.9	78.2
722.8	1.236	1.732	5.164	1.518	0.000	2.010	0.447	274.6	70.4
777.3	1.327	1.761	5.174	1.537	0.000	2.032	0.445	260.1	67.4
831.9	1.427	1.797	5.194	1.556	0.000	2.058	0.440	246.9	58.8
886.4	1.529	1.820	5.202	1.571	0.000	2.077	0.439	233.5	54.1
941.0	1.631	1.852	5.214	1.582	0.000	2.102	0.437	222.8	57.6
995.5	1.718	1.875	5.237	1.589	0.000	2.116	0.431	214.2	51.3
1050.1	1.813	1.899	5.263	1.598	0.000	2.129	0.425	205.6	42.7
1104.6	1.909	1.916	5.279	1.589	0.000	2.139	0.422	197.0	40.9
1159.2	2.007	1.938	5.290	1.597	0.000	2.157	0.420	189.7	37.6
1213.7	2.104	1.952	5.320	1.586	0.000	2.159	0.412	182.3	37.9
1268.3	2.191	1.973	5.353	1.573	0.000	2.168	0.405	176.9	44.9
1322.8	2.289	1.994	5.357	1.589	0.000	2.186	0.405	171.2	39.6
1377.3	2.378	2.010	5.379	1.577	0.000	2.193	0.400	166.1	34.1
1431.9	2.494	2.029	5.413	1.560	0.000	2.199	0.392	159.9	30.3
1486.4	2.592	2.043	5.429	1.561	0.000	2.206	0.389	154.9	32.3
1541.0	2.695	2.061	5.454	1.548	0.000	2.215	0.384	150.4	33.2
1595.5	2.793	2.076	5.481	1.543	0.000	2.219	0.378	146.1	26.2
1650.1	2.893	2.087	5.500	1.539	0.000	2.223	0.374	141.9	25.8
1704.6	3.000	2.103	5.521	1.529	0.000	2.230	0.370	137.9	26.6
1759.2	3.089	2.113	5.538	1.519	0.000	2.234	0.367	134.6	36.0
1813.7	3.163	2.131	5.579	1.500	0.000	2.236	0.358	132.6	30.9
1868.3	3.292	2.140	5.605	1.478	0.000	2.235	0.353	127.9	24.2
1922.8	3.386	2.156	5.644	1.470	0.000	2.236	0.344	125.3	28.1
1977.4	3.482	2.166	5.661	1.450	0.000	2.240	0.341	122.4	24.0
2031.9	3.592	2.181	5.677	1.453	0.000	2.248	0.338	119.5	21.7
2086.5	3.698	2.190	5.698	1.446	0.000	2.248	0.334	116.5	17.2
2141.0	3.794	2.198	5.722	1.426	0.000	2.248	0.329	114.1	21.9
2195.6	3.909	2.213	5.754	1.414	0.000	2.250	0.323	111.5	17.6
2250.1	4.018	2.218	5.767	1.400	0.000	2.250	0.321	108.7	24.1
2304.6	4.103	2.235	5.799	1.389	0.000	2.254	0.315	107.2	28.3
2359.2	4.202	2.244	5.827	1.370	0.000	2.252	0.309	105.1	15.4
2413.7	4.312	2.251	5.843	1.356	0.000	2.253	0.306	102.8	20.4
2468.3	4.401	2.263	5.863	1.351	0.000	2.257	0.303	101.3	24.4
2522.8	4.484	2.272	5.908	1.320	0.000	2.250	0.294	99.8	20.2
2577.4	4.591	2.282	5.926	1.311	0.000	2.253	0.291	97.9	15.3
2631.9	4.697	2.288	5.962	1.286	0.000	2.246	0.283	95.9	23.5
2686.5	4.780	2.303	6.000	1.258	0.000	2.246	0.276	94.9	21.6

STAGE 1

Elapsed Time (min)	Axial Strain ϵ_a (%)	q (ksf)	p' (ksf)	Excess PWP, ΔU (ksf)	Volume Change (cm ³)	Obliquity σ'_1/σ'_3 -	A_f -	E_s (ksf)	E_T (ksf)
2741.0	4.892	2.307	5.997	1.262	0.000	2.250	0.277	92.9	8.1
2877.4	5.135	2.318	5.992	1.276	0.000	2.262	0.279	88.9	11.9
3013.8	5.370	2.335	6.033	1.258	0.000	2.263	0.272	85.7	15.9
3150.1	5.615	2.356	6.096	1.211	0.000	2.260	0.261	82.7	14.9
3286.5	5.884	2.374	6.182	1.134	0.000	2.246	0.244	79.5	11.9
3422.9	6.140	2.388	6.233	1.112	0.000	2.242	0.234	76.6	9.1
3559.2	6.372	2.396	6.253	1.091	0.000	2.242	0.231	74.1	5.9
3695.6	6.636	2.402	6.282	1.073	0.000	2.238	0.226	71.3	4.3
3831.9	6.885	2.407	6.297	1.063	0.000	2.237	0.223	68.9	6.5
3968.3	7.131	2.418	6.376	0.993	0.000	2.222	0.208	66.8	6.6
4104.7	7.381	2.423	6.432	0.943	0.000	2.209	0.197	64.7	2.9
4241.0	7.616	2.425	6.460	0.921	0.000	2.202	0.191	62.8	1.9
4377.4	7.853	2.428	6.496	0.885	0.000	2.194	0.184	60.9	1.0
4513.8	8.097	2.427	6.532	0.850	0.000	2.183	0.176	59.1	-2.6
4650.1	8.354	2.421	6.559	0.815	0.000	2.170	0.170	57.1	-5.4
4786.5	8.599	2.414	6.588	0.781	0.000	2.156	0.163	55.3	-5.9
4922.9	8.835	2.407	6.614	0.746	0.000	2.144	0.156	53.7	-7.1
5059.2	9.114	2.395	6.629	0.724	0.000	2.131	0.152	51.8	-7.7
5195.6	9.382	2.386	6.655	0.681	0.000	2.117	0.144	50.1	-9.0
5332.0	9.624	2.372	6.671	0.652	0.000	2.104	0.139	48.6	-10.3
5468.3	9.883	2.360	6.683	0.630	0.000	2.092	0.135	47.1	-10.0
5604.7	10.134	2.347	6.687	0.612	0.000	2.082	0.132	45.6	-10.9
5741.1	10.390	2.332	6.709	0.582	0.000	2.066	0.125	44.2	-11.2
5877.4	10.644	2.318	6.726	0.552	0.000	2.052	0.119	42.9	-9.5
6013.8	10.872	2.309	6.750	0.513	0.000	2.040	0.112	41.8	-8.9
6150.2	11.152	2.296	6.757	0.492	0.000	2.029	0.108	40.5	-9.7
6286.5	11.402	2.284	6.766	0.473	0.000	2.019	0.104	39.4	-11.0
6422.9	11.659	2.268	6.758	0.465	0.000	2.010	0.103	38.3	-12.1
6559.3	11.916	2.253	6.754	0.448	0.000	2.001	0.101	37.2	-12.3
6695.6	12.160	2.237	6.752	0.446	0.000	1.991	0.099	36.2	-11.9
6832.0	12.410	2.223	6.742	0.437	0.000	1.984	0.098	35.3	-11.5
6968.4	12.668	2.208	6.762	0.409	0.000	1.970	0.091	34.3	-11.5
7104.7	12.908	2.194	6.779	0.373	0.000	1.957	0.084	33.5	-10.5
7241.1	13.138	2.183	6.752	0.387	0.000	1.956	0.089	32.7	-10.3
7377.5	13.383	2.170	6.760	0.360	0.000	1.945	0.084	31.9	-10.8
7513.8	13.657	2.155	6.755	0.355	0.000	1.937	0.082	31.1	-9.4
7650.2	13.909	2.145	6.769	0.327	0.000	1.928	0.077	30.3	-7.8
7786.5	14.153	2.136	6.807	0.288	0.000	1.915	0.066	29.7	-11.1
7922.9	14.402	2.118	6.800	0.275	0.000	1.905	0.064	28.9	-12.8
8059.3	14.657	2.104	6.783	0.276	0.000	1.899	0.065	28.2	-12.3
8183.9	14.908	2.087	6.755	0.291	0.000	1.894	0.069	27.5	-13.5